ISSUES, IDEAS AND INFORMATION FOR PSYCHOLOGY STUDENTS

NO.9 - DEBATES IN PSYCHOLOGY

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CONTENTS

1. INTRODUCTION TO THE DEBATES

Underlying the approaches in psychology are philosophical debates about human behaviour, and the way to study it. The most important debates are (table 1.1):

- Free will/autonomy and determinism
- Nature and nurture
- Holism and reductionism
- Idiographic and nomothetic
- Psychology as a science

Free will vs determinism	Free will; autonomy; choice; agency; control: Individuals choose their behaviour	Determinism: Individuals have no choice or control over behaviour
Nature vs nurture	Nature: Behaviour innate, inborn, inherited	Nurture: Behaviour learned from environment, society
Holism vs reductionism	Holism: Focus on the whole of behaviour	Reductionism: Behaviour studied in individual parts
Idiographic vs nomothetic	Idiographic: Focus on uniqueness of individual	Nomothetic: Comparison of individuals on similarities
Psychology as science	Psychology should be viewed natural sciences like biology and chemistry	Psychology is not scientific

Table 1.1 - Summary of two positions in main debates in psychology.

Still (1996) described the debates as "metatheories of meaning" because the division of the approaches between them relates to the core understanding of psychology. Each side of the debates leads to a very different understanding of the world, behaviour, and psychology.

The sides of the debate can viewed as contradictory, supplementary (each describing something different), or complementary (both necessary for a full picture) (Still 1996).

The main approaches in the history of psychology take different positions in these debates (table 1.2). The main approaches are (Billingham et al 2008):

- Biological - focusing on the biological bases of

behaviour;

- Behaviourist - emphasising learning in the form of
classical and operant conditioning;

- Social Learning Theory - also emphasising learning but
through observation and imitation;

- Cognitive - the focus is upon the thinking (cognitive)
processes behind behaviour;

- Psychodynamic - based on the ideas of Sigmund Freud who
concentrated upon early childhood experiences, and the
adult unconscious mind;

- Humanistic - a person-centred approach that focuses
upon how the individual makes sense of their behaviour
and their choices.

APPROACH	Autonomy-determinism	Nature-nurture	Holism-reductionism	Idiographic-nomothetic	Psychology = science
Biological	D	Na	R	N	Yes
Behaviourist	D	Nu	R	N	Yes
Social Learning Theory	middle	Nu	R	N	Yes
Cognitive	middle	Both	R	N	Yes
Psychodynamic	D	Both	R	Both	No
Humanistic	A	Both	H	I	No

Table 1.2 - Six main approaches in psychology and
positions in main debates.

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2. FREE WILL AND DETERMINISM

2.1. INTRODUCTION

"The question of free will goes to the root of our views about human nature and how we relate to the universe and to natural laws ..do we have some independence in making choices and actions, not completely determined by the known physical laws?" (Libet 1999 p47).

This debate is around how much actual control humans have over their own behaviour, and what is the cause of behaviour. On the determinism side, of which there are different types, behaviour is caused by something outside of conscious control. On the free will/autonomy side, we choose our behaviour. We are the cause of our behaviour (figure 2.1).

DETERMINISM		FREE WILL/ AUTONOMY
Approaches	middle	
Biological	position:	Humanistic
Behaviourist	Cognitive	
Psychodynamic	Social Learning Theory	

Figure 2.1 - Six main approaches in psychology and autonomy-determinism debate.

2.2. DETERMINISM

Determinism can take different forms including internal (physiological), external (environment and society), or the past. Each of the three main approaches on this side of the debate propose a different form of determinism:

• Biological approach - This approach argues that our behaviour is determined by genetic, biochemical and physiological processes. We have no control over our behaviour because the body that we are born with

controls what we do.

- Behaviourist approach - B.F.Skinner rejected behavioural freedom as an illusion because, for him, all behaviour is determined by previous experience and reinforcement. Our behaviour is nothing more than the automatic product of learned stimulus-responses. This is environmental determinism.

- Psychodynamic approach - There is only an illusion of freedom because strong instincts (Eros and Thanatos) and unconscious motives determine our behaviour, according to Freud. In fact, Freud talked about overdeterminism because he saw multiple psychic causes to behaviour. Psychic here refers to the unconscious.
  More recent psychodynamic theorists have accepted that individuals may have some control over their behaviour.

These approaches are known as hard determinism because there is no choice or control our behaviour, and even our conscious thoughts are determined in some way.

Conscious will is seen as an illusion "in the sense that the experience of consciously willing an action is not a direct indication that the conscious thought has caused the action" (Wegner 2002 p2). Brain damage, like alien hand syndrome, undermines any idea of free will. Alien hand syndrome is where an individual's hand behaves as if not controlled by the owner, and is caused by damage to the middle of the frontal lobe on the side of the brain opposite to the affected hand (Gasquoine 1993). One patient observed "turned the pages of the book with one hand while the other tried to close it" (Banks et al 1989 p457).

Wegner (2002) makes the distinction between the feeling of doing and no feeling of doing, and the actual doing and not doing as four possibilities (table 2.1).

	FEELING OF DOING THE ACTION	NO FEELING OF DOING THE ACTION
DOING THE ACTION	voluntary behaviour	automatism behaviour (eg: dissociative personality; sleepwalking)
NOT DOING THE ACTION	illusion of control (eg: rolling numbers want on dice)	inaction

Table 2.1 - Feeling of doing and actually doing the action.

Table 2.2 summarises the strengths and limitations of the determinism position.

STRENGTHS	LIMITATIONS
* Fits with a scientific approach that assumes a cause to behaviour. The whole basis of science is establishing cause and effect relationships for behaviour. * It allows for the prediction of future behaviour, which is another principle of the scientific approach. * Prediction allows for control. For example, knowing that a shortage of a particular neurochemical causes depression can be controlled by drug treatment. * It is commonsense that behaviour must have a cause because the opposite to cause is randomness. * Can provide a theoretical model of how behaviour is determined.	* Impossible to find the determinants of all behaviour because it is not possible to design experiments to find the original determinant. Working backwards, everything is determined by something else. * Removes responsibility from individuals for their behaviour. Is an offender guilty because their behaviour was determined? * Having no free will can demotivate individuals as there is no point in trying if behaviour is determined anyway, including the motivation to try or not. * Biological determinism presents humans as biological robots or zombies. * There are many different types of determinism. Are we determined by all of them at the same time or how do we know which type is causing our behaviour?

Table 2.2 - Strengths and limitations of determinism side of debate.

2.3. FREE WILL/AUTONOMY

Gross (1998) distinguished free will as:

• Having a choice;
• Not being coerced or constrained;
• Voluntary.

Only the Humanistic approach, of the major approaches in psychology, takes this side of the debate and firmly asserts that individuals choose their own behaviour. They are able to reflect upon their behaviour and then control what they do.

The debate can become very philosophical as to how much freedom that individuals really have. For example, we cannot choose the body we were born with, though medical technology now allows more changes to it (eg: heart transplant).

A slightly different position is called voluntariness. This is doing what we want in situations where there is a choice. This idea is moving towards a middle position in the debate, which can be called soft determinism. William James (1890) was the first to propose the idea of soft determinism in psychology. Individuals have some choice within constraints.

The Cognitive approach describes the brain as an information-processing machine. Thus it works in a particular determined way, but the individual can choose within that limitation. For example, when making an attribution about another person's behaviour, our choice is limited to an internal or external attribution.

The Social Learning Theory can also be described as soft determinism. Individuals learning by observation (determined), but choose to copy a behaviour based upon the expectation of reward or punishment (free will).

Another alternative is non-determinism - "the view that conscious will may, at times, exert effects not in accord with known physical laws" (Libet 1999).

Table 2.3 summarises the strengths and limitations of the free will/autonomy position.

STRENGTHS	LIMITATIONS
* Individuals are empowered and motivated by the knowledge that they have choice and control over their behaviour. * Individuals are responsible for their own behaviour, and thus must face the consequences of their actions. * Determinism and causality are principles of physical sciences, like chemistry and physics, but are too limiting to explain all human behaviour. * If all behaviour was cause by predictable factors, individuals could be easily controlled by governments, for example, free will allows individuals to resist such control. Positive social change comes about through individuals choosing to rebel against the status quo. * It is psychologically comforting to believe that we have free will.	* Complete free will would mean that behaviour had no cause, but human behaviour is caused by something. * How to explain when individuals do things and they do not know why? * Many aspects of behaviour are outside of choice like the genes inherited, the limitations of the physical body, or when we are born. Most physiological processes, like heartbeat, are outside conscious awareness. * If nothing else, we cannot be totally free because of social rules and demands. If everybody did what they wanted when they wanted, there would be anarchy and chaos. Conformity to social rules allows a stable society. * Cannot explain fully how free will works

Table 2.3 - Strengths and limitations of the free will/autonomy side of the debate.

2.4. CONCLUSIONS

In 1985 Benjamin Libet (appendix 2A) found that, when individuals were asked to choose when to lift their fingers, there was electrical brain activity 300 milliseconds before the choice was made. This seems to suggest that the choice was determined by preceding brain activity.

This research, which has been replicated, has disturbing implications about physiological determinism, and is part of the increasing knowledge about thought and consciousness coming from studies using sophisticated technology.

Does that really mean that free will is an illusion? Chris Frith (2007), a neuroscientist, gives a honest reply to this question: "Personally, I like to think we do have some free will: after all, our most important way of classifying the world is into people (or agents) and things. If I don't have free will than I am not a person" (p47).

Libet (1999) concluded something similar - "why not adopt the view that we do have free will (until some real contradictory evidence may appear, if it ever does). Such a view would at least allow us to proceed in a way that accepts and accommodates our own deep feeling that we do have free will" (p56).

Put another way, it does not matter if we have free will or not, what matters to the individual is the experience and meaning of their behaviour (and choices). Experiments like Libet's focus on minute parts of human activity, and miss the wider meanings and intentions (Fuchs 2006).

Most psychologists accept that behaviour has a cause (a determinant), but the disagreement is to what extent individuals have flexibility in relation to the determinant.

Brewer (2007) proposed an alternative to the simple either/or dichotomy of free will and determinism in the form of degrees of autonomy. Envisaged as a V shape, the lower down the less choice and greater determinism, and the higher up the opposite (figure 2.2). The position in the V shape is influenced by many factors like biological (eg: physical health, physical disability) and society (eg: wealth, social pressure).
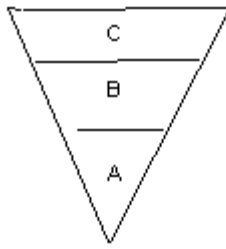
A = Behaviour is determined with little choice or autonomy
B = Choice and autonomy are limited by various factors
C = Few restrictions or determinants on choice and autonomy

(After Brewer 2007)

Figure 2.2 - Autonomy and determinism as an upturned triangle.

2.5. APPENDIX 2A - BENJAMIN LIBET

In his experiments, free will was operationalised thus:

- "there should be no external control or cues to affect the occurrence or emergence of the voluntary act under study";
- "the subject should feel that he/she wanted to do it, on his/her own initiative, and feel he could control what is being done, when to do it or not to do it" (Libet 1999 p47).

Libet et al (1982) asked participants to simply flex their wrist at any time they wished to do so. "Readiness potentials" (RP) (electrical activity in the brain) as measured on the scalp appeared around 550 milliseconds before the muscle movement. What is the relationship between the RP and the conscious decision to move the wrist?

To answer this question, Libet et al (1983) asked participants to focus upon a spot of light revolving around a clock-face, and to note the position of the spot when they became aware of the intention to act (W - first awareness of wish to act). The spot completed a circle every 2.56 seconds, which meant that every "second" on the clock-face was equivalent to about 40 milliseconds.

Putting these measures together in the experiment, RP occurred 550 milliseconds before muscle activation, and W was 200 milliseconds before activation (figure 2.3). So there was a period of about 350 milliseconds where the brain acted before a conscious decision was made. "The initiation of the freely voluntary act appears to begin in the brain unconsciously, well before the

person consciously knows he wants to act" (Libet 1999 p51).

But Libet (1999) admitted that this did not totally preclude free will because, after the RP, the individual could choose to stop the muscle movement initiated by unconscious cerebral processes. Participants in the experiment reported a conscious wish or urge to move their wrist which they suppressed or vetoed (Libet 1999). "The role of conscious free will would be, then, not to initiate a voluntary act, but rather to control whether the act takes place. We may view the unconscious initiatives for voluntary actions as 'bubbling up' in the brain. The conscious will then selects which of these initiatives may go forward to an action or which ones to veto and abort, with no act appearing" (Libet 1999 p54).

	RP	W	MUSCLE MOVEMENT
	↓	↓	↓
Time (msecs)	-500	-200	0

(After Libet 1999)

Figure 2.3 - Sequence of events in voluntary muscle movement.

These findings have not necessarily resolved the free will-determinism debate. Individuals feel that they have free will, but this feeling could be an illusion created by the brain, say determinists. While the free willers argue that something non-deterministic may be happening before the RP, and it is too minute to measure physiologically.

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3. FEMALE MIGRANT PROSTITUTES AND AUTONOMY AND DETERMINISM

3.1. CHOOSING TO BE A MIGRANT PROSTITUTE

"Migrant prostitutes" are individuals, primarily women, who move from their home to another area to "sell" sex [1]. "The differences in the circumstances of migrant prostitutes are vast. Some may have been cheated or forced into the trade; others have chosen it voluntarily, knowing what the work entails; and some have had experience of prostitution both at home and abroad before travelling to Europe" (Thorbek 2002 p1).

The free will/autonomy-determinism distinction can be applied here, simplistically, as a continuum (figure 3.1).

DETERMINISM		FREE WILL/AUTONOMY	
1. Forced into prostitution at home and trafficked	2. Cheated - move to another area for work and found self in prostitution [2]	3. Trafficked knowing what involved	4. Chose to move to another area to work as prostitute, and arranged own travel

Figure 3.1 - Free will/autonomy-determinism and "choice" to work as migrant prostitute.

In reality, decisions are not clear-cut as choose or forced. Sanghera (1997; quoted in Pattanaik 2002) noted "the multitudinous shades of grey which stretch out extensively between black and white". Furthermore, Thorbek (2002) stated that "all women who work as prostitutes abroad are considered to be victims of trafficking, but this perception is wrong" (p5). For example, a woman may go abroad to work as a prostitute, and then not like the conditions of work there.

Any decision or choice is restricted and influenced

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[1] Agustin (2006) preferred "migrants who sell sex".
[2] "Deceptive coercion":- eg: woman told she will be working as domestic or waitress before leaving (Meaker 2002).

by many factors. So, a woman at point no.4 in figure 3.1 may choose to work as a migrant prostitute because it is well paid compared to local wages and work opportunities. As a rule, women are economically disadvantaged throughout the world. Thus migrant prostitution is the "lesser of two evils" for survival and providing for the family. In an absolutely ideal world, she would not choose to be a migrant prostitute. The "V-shaped" model, proposed by Brewer (2007), attempted to highlight the complexity of behaviour as a combination of choice and determined (figure 3.2).
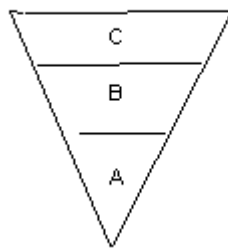
A = Behaviour is determined with little choice or autonomy
B = Choice and autonomy are limited by various factors
C = Few restrictions or determinants on choice and autonomy

(After Brewer 2007)

Figure 3.2 - "V-shaped" model of autonomy and determinism.

In situation A, there is little choice of autonomy as in women forced into prostitution as "sex slaves". Yet, even here, there are opportunities for autonomy for the individual, though it may be few. Situations B and C offer greater degrees of autonomy. Situation C has few restrictions on choice and autonomy, but there are still limitations. The woman who chooses to travel abroad herself because migrant prostitution produces a better income than locally is an example here.

Behaviour does not exist in a vacuum, and individuals are involved in power relationships. In the case of prostitutes, O'Connell Davidson (1998) highlighted three:

• With the customer - money buys any "service" or does the woman refuse to do certain things;
• With "third parties" (eg: owners of brothels);
• With society and the legal system.

"These three power relations influence each other: the law and the police's implementation of it places limits on the actions of 'third parties', and

prostitutes' relations with customers are influenced by both the others" (Thorbek 2002 p7).

The complexity of autonomy and determinism on behaviour is true to all behaviours and actions.

3.2. EXAMPLES OF WOMEN'S EXPERIENCES

Meaker (2002) observed that many women from south-east Asia in prostitution in Australia were "debt-contract workers" who "know they will be working in the sex industry and often decide to come to Australia in the belief that they will be able to make a substantial amount of money" (p61). Contract workers have their air fares and accommodation provided, and pay back the debt through quotas of clients. Such women are vulnerable in Australia because of their dependence on the contract provider including long working hours, poor working conditions, and unsafe sex.

Meaker asked, then, why do women enter such a debt-contract? Her answer showed the combination of factors that influence any decision - economic necessity, family dependence, limited opportunities at home, little education, and poorer wages than men. "Many women tolerate their circumstances with the philosophical attitude that a little suffering now will lead to financial security in the future" (Meaker 2002 p62).

On the other hand, Meaker also reported positive decisions for working as a prostitute: "The expression of sexuality can be empowering for women from cultures where sexual expression is often suppressed. Some women have described the process of becoming a sex-worker as liberating, explaining that it provides them with power, independence and self-confidence" (p63) [3].

Ruenkaew (2002) reported that a hidden aspiration for some Thai women in prostitution in Germany was the chance to marry a "well-off foreigner". This was a path open to such women studied in Hamburg (Mix 2002).

Once involved in prostitution, there are factors that maintain that involvement. Lisborg (2002), talking about Thai women in Denmark, mentioned the dependence on "relatively high earnings", and having crossed a psychological boundary and cannot return to an "ordinary" way of life.

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[3] Agustin (2006) argued that there is an academic silence on studying "migrants who sell sex" which "facilitates the avoidance of uncomfortable truths for Western societies: their enormous demand for sexual services and the fact that many women do not mind or prefer this occupation to others available to them" (p29).

Because of the economic inequalities of the world, for individuals in poorer countries autonomy in relation to money is a concept of limited use. Prostitution may be more attractive than begging, but neither of these would be chosen.

Agustin (2004) was critical of an "agency-free view of the poorer women of the world" that treats them as "naive women who only yesterday were carrying water on their heads in some remote countryside - the fact that many come from large post-modern cities and have planned their migrations to the best of their ability disappears" (p68). Many such migrants do not view themselves as "passive victims" - "many feel their current life is difficult, and they are trying to improve it" (Agustin 2004).

Agustin (2005) admitted:

I do not reproduce the usual separation
between migrant women who sell domestic or
caring services and those who sell sex.
No such separation actually exists but is
rather imposed from outside, in an imaginary
that finds domestic workers to be "good" or
"safe" women while those selling sex are either
"bad" or "victims". Domestic and caring work share
many characteristics and dangers with some kinds
of sex work, numerous migrants take on both kinds
of jobs when trying to acquire as much money as
possible in a short amount of time and abuse
and labour-related problems are rife amongst
them all.

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4. AGENCY AS A PROBLEM

4.1. PSYCHOANALYTIC CHALLENGE TO AGENCY

"The problem of agency has been inherited from western philosophy by both social science and by psychology, and is a constant presence, either as figure or as ground ..the problem of agency has revolved around the presumed passivity or activity of the individual in the face of social circumstances" (Hollway and Jefferson 2005 p148). Hollway and Jefferson highlighted how the debate on agency (or free will-determinism in other places) is a simple either you have it or you don't. They preferred to break down the dualism between agency (free will, autonomy, choice) and structure (determinism, forced, controlled).

The concept of agency tends to focus on "an idea of conscious, rational choice" and "sees actions as discrete episodes rather than as a continuous flow of social practices", they argued. If behaviour is a "continuous flow of social practices", then it allows for complexity of influences on behaviour. Hollway and Jefferson included unconscious influences, as they advocated the Social Psychoanalytic (SP) approach to psychology. This combines ideas from psychoanalysis and psychodynamics (like the unconscious), and those from social constructionism (like discourses and subject positions).
    In understanding an individual's behaviour, this produces a "psychoanalytically informed idea of investment". An "investment" relates to a particular discursive position. In other words, individuals will be committed to certain positions in society ("investments") without conscious, rational intentions why (psychoanalytic). For example, masculinity and its associated values and norms is a discursive position, and individual men can perform the behaviours of this position without knowing why - "it's the way men are", "it's natural".

4.2. THE CASE OF VINCE

Hollway and Jefferson (2005) referred to the case study of Vince who faced a conflict at work which made him ill. A conflict about lying in a legal case compared to the loss of his job (box 4.1).

> Vince was a married man in his 40s with three children, who lived on a council housing estate in the North of England. He had been a lorry driver for twelve years.
>
> One Monday morning, Vince got up and felt "absolutely shocking like". When his wife called the doctor, despite the protests, Vince started to panic.
>
> The court case related to a situation when Vince left the keys in his unlocked van parked outside the company offices (company policy). The van was stolen, but the insurance company would not pay the claim because the keys were left in the van. Initially Vince admitted to the insurance company his mistake, but when his employer took the insurers to court, Vince was under pressure to lie about the keys to save his job. It was three years between the event and the court case, and after that he became ill. The employer won the court case and Vince's job was assured. Also afterwards the employer gave Vince money for lying in court.
>
> Vince explains his depression as the worry of the events finally catching up with him. But Hollway and Jefferson felt that his own explanation was "insufficient" because Vince did not feel better after the court case was resolved.

Box 4.1 - Details of case study of Vince.

Rather than the situation being that Vince was forced to lie by his boss (determinism or structure) or had the choice to say "no" (autonomy or agency), both positions existed together. The only solution of the situation, from a psychoanalytic point of view, was to become ill: "He had come to dread his job and it must follow that a part of him wished to be rid of it. It is also clear that this part was in fundamental conflict with another part ..that dreaded not having this job" (p161). The resolution was unconscious.

"On the one hand he has not chosen to quit his job. He and others can honestly say that he would be working if he could. His intentions remain unimpeachable. On the other, his collapse has achieved that desired-and-feared situation: he does not have to go to work" (Hollway and Jefferson 2005 p161).

The emphasis on the unconscious and the interpretation of Vince's behaviour is not accepted by all. For example, Spears (2005) saw the conflict as a conscious one between the shame of Vince's inability to stand up to the boss versus the masculine ideals of power and strength.

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5. WILLPOWER

5.1. INTRODUCTION

Another way of looking at the autonomy-determinism debate is in terms of resisting impulses. The classic resistance to temptation experiment offers the child one sweet in front of them now, or two if they can wait a certain amount of time. There are individual differences in willpower in this experiment at four years old that show themselves as advantages in later life (eg: better paid jobs, better health). Intelligence is one factor but not the complete answer (Phillips 2008).

Willpower has been formally called "self-regulatory strength", and is "the ability to meet self-regulatory demands such as inhibiting impulses, making decisions, persisting at difficult tasks, and controlling emotions" (Segerstrom and Solberg Nes 2007). It has a limited capacity. "The more effort is expended, the more the self-regulating 'muscle' is fatigued, and the less strength remains for further efforts" (Segerstrom and Solberg Nes 2007).

Baumeister et al (1998) used the term "ego depletion" "to refer to a temporary reduction in the self's capacity or willingness to engage in volitional action (including controlling the environment, controlling the self, making choices, and initiating action) caused by prior exercise of volition" (p1253).

There is some parallel in this work to Sigmund Freud's (1923/1961) view of the "battle" within the personality between the id and the superego as refereed by the ego. For example, "a Victorian gentleman standing on the street might feel urged by his id to head for the brothel and by his superego to go to church, but it is ultimately left up to his ego to start his feet walking in one direction or the other" (Baumeister et al 1998). The ego needs energy, which can be reduced by other efforts, to make this decision.

5.2. EXPERIMENTAL RESEARCH

The choice to exercise self-control may not be that

(a choice), it may have physiological origins. For example, Segerstrom and Solberg Nes (2007) got participants to eat carrots and resist cookies while measuring their "heart rate variability" (HRV) (tiny variations in heart rate with each beat). There is a temporary increase in HRV followed by a temporary drop as the individual resists the temptation. Individuals with high HRV were more able to resist (appendix 5A).

On the other hand, willpower may be a limited resource which individuals can choose to use until it runs out. Baumeister et al (1998) asked participants to resist eating either radishes or freshly baked cookies for five minutes. Then they were asked to solve (unsolvable) puzzles, and the level of persistence was measured. Both tasks required willpower. Individuals who had resisted the cookies (taking more resources) gave up quicker on the puzzles than radish-resisters (appendix 5B).

Watching another person exercise self-restraint or taking their perspective can also reduce resources. For example, participants who took the perspective of a hungry waiter resisting the temptation to eat were more vulnerable to subsequent impulse spending (lack of self-control) than participants who just read about the waiter (Carpenter 2009).

Masicampo and Baumeister (2008) found that a sugary lemonade drink increased the resources of willpower in similar tasks more than no drink or an artificially sweetened one. Sugar provided energy which increased the resources available (appendix 5C).

Planning has also been found to reduce the willpower used, and increase the likelihood of achieving the goal. Participants who wrote down details of how, where and when to complete a task were three times more likely to do it than non-planners (Phillips 2008). This is known as "implementation intentions": "if-then plans" (ie: "If situation x arises, then I will perform response y) (Schweiger Gallo and Gollwitzer 2007).
It has been used with emotion regulation. Schweiger Gallo and Gollwitzer (2007) recruited female students with an intense fear of spiders. They were shown 45 pictures including fifteen of spiders. Participants had to rate their emotional response to each picture. The students were divided into three groups in terms of instruments given:

• Implementation intention - told to say, "I will not get frightened and if I see a spider, then I will keep calm and relaxed";

- Goal intention - told to say, "I will not be frightened";
- Control - no instruments.

The implementation intention group rated the spider pictures more positively than the other group.

5.3. APPENDIX 5A - SEGERSTROM AND SOLBERG NES (2007)

The researchers asked 168 students at the University of Kentucky, USA to volunteer for "a study of the physiology of 'food preferences' that ostensibly compared physiological reactions to different foods with physiological reactions to stress and relaxation". The students, who had fasted for the previous three hours, were presented for five minutes with two foods. They were instructed to eat one and not the other.
In the low self-regulation condition, participants were told to eat the chocolate or sweets but not the carrot sticks, and the opposite in the high self-regulation condition. After this, participants were asked to solve difficult and impossible anagrams. Time before giving up was measured as the operationalisation of "self-regulation fatigue". Heart rate was recorded throughout the experiment.
Participants persisted longer on the anagrams in the low self-regulation condition. In the high self-regulation condition, higher HRV was associated with longer persistence.

5.4. APPENDIX 5B - BAUMEISTER ET AL (1998)

Experiment 1

Sixty-seven psychology students were presented with just-baked chocolate chip cookies and a bowl of red and white radishes. Under the pretext of a taste perception experiment, participants were left alone in the room and asked to eat only one of the type of foods. During the five minutes the experimenters observed through a one-way mirror. Then the participants were asked to trace geometrical figures "without retracing any lines and without lifting his or her pencil from the paper". The puzzles were unsolvable. Persistence was measured as the amount of time spent on the puzzles up to thirty minutes. The control group had no food.
Persistence was longest for the control group (mean 20.86 minutes before giving up) followed by 18.90 minutes in eat cookies/resist radishes condition, and 8.35 minutes in the opposite condition. "Resisting temptation seems to have produced a psychic cost, in the sense that

afterward participants were more inclined to give up easily in the face of frustration" (p1255).

Experiment 2

This experiment used a similar design to experiment 1, but the "ego depletion" task involved choice. Thirty-nine students were asked to read speeches to be recorded about increasing tuition fees at their university. In one condition, participants were told to read the pro-increase speech (no choice). In the other condition, participants were given a choice, but the experimenter asked them to choose the pro-increase speech. In the persistence test, participants continued significantly longer in the no choice condition. The results "suggested that acts of choice draw on the same limited resource used for self-control" (p1257).

Experiment 3

This experiment got thirty students to suppress their emotions or not while watching a ten-minute emotional videotape. Persistence was afterwards tested with thirty sets of solvable anagrams for six minutes. The group that had to suppress their emotions (ego depletion) solved fewer anagrams.

Experiment 4

In this experiment, ego depletion was created by a boring task of crossing off all the letter "e" in a passage of text (while following a complex set of rules about it; eg: "e" before another vowel crossed out left to right). Then the 84 participants were shown a dull film, and could choose to stop watching by pressing a button (active-quit condition) or by releasing a button held down to watch (passive-quit condition). It was predicted that ego depletion would lead to subsequent passivity as shown by longer watching of the film when continuing was passive (and stopping was active - active-quit condition). This is the passive-option effect. The mean viewing time was 71 seconds for the passive-quit condition and 125 seconds in the active-quit condition.

Table 5.1 summarises the results from the four experiments.

EXPERIMENT	EGO DEPLETION	CONTROL	SIGNIFICANCE
1 (Persistence on unsolvable puzzles - mins)	resist cookie: 8.35 resist radish: 18.90	No food: 20.86	p<0.001
2 (Persistence on unsolvable puzzles - mins)	No choice: 23.11 Choice (counter-attitudinal): 14.30 * (pro-attitude): 13.80 **	No speech: 25.30	p<0.001
3 (No of anagrams solved)	Suppress emotions: 4.94	No suppression: 7.29	p<0.05
4 (Mean seconds of dull film watched)	Active-quit: 125 Passive-quit: 71	Active-quit: 88 Passive-quit: 102	p<0.025

(* could choose speech, but asked to read speech against own attitude; ** could chose speech, but asked to read speech similar to own attitudes)

(After Baumeister et al 1998)

Table 5.1 - Summary of results from Baumeister et al (1998).

5.5. APPENDIX 5C - MASICAMPO AND BAUMEISTER (2008)

One hundred and twenty students at Florida State University, USA were used in this experiment. They were randomly assigned to receive a lemonade drink sweetened with sugar or an artificial sweetener under the pretext of a taste perception experiment. Participants were then shown a six-minute video of a woman talking with distracting words at the bottom of the screen. In the depletion condition, participants were told not to read or look at the words.

In the next part of the experiment, they were asked to rate three apartments based on criteria like size and distance from university (figure 5.1). The easy option was nearer to the university but smaller. The dependent variable measure related to difficulty of decision-making (ie: quick decision or weigh up all options). Stanovich (1999) distinguished System 1 decision-making (quick and based on heuristics) and System 2 decision-making (effortful and based on more complex rules).

```
STAGE 1                 Sugar               Sweetener (Placebo)
LEMONADE DRINK

                          ↓    ↓              ↓      ↓
STAGE 2              Depletion  No depletion  Depletion  No depletion
WATCH VIDEO         (a)        (b)           (c)        (d)

STAGE 3                   ↓    ↓              ↓      ↓
DECISION-MAKING           Apartment choice
```
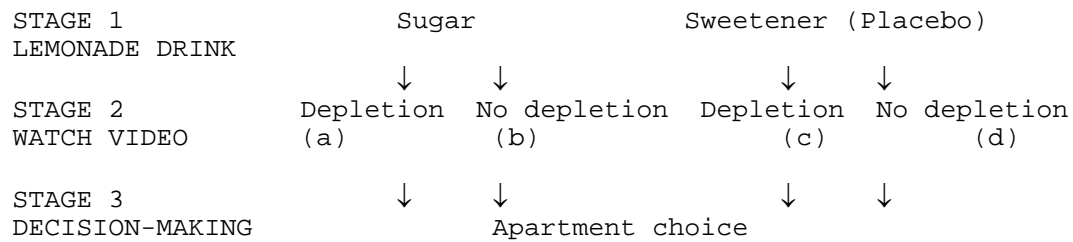
Figure 5.1 - Design of experiment by Masicampo and Baumeister (2008).

Quick, effortless decision-making was more common among participants in the depletion condition who received sweetener (group c in figure 5.1). In the depletion condition which received the sugary lemonade (group a in figure 5.1), less participants chose the easy option. Thus glucose (sugar) intake reduced the effect of ego depletion.

5.6. REFERENCES

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6. PSYCHOLOGY DEBATE: THIS HOUSE BELIEVES THAT HOMOSEXUALITY IS CAUSED BY A "GAY GENE"

FOR

1. Evolution is concerned with the passing of one's genes into the next generation (ie: heterosexuality). But for individuals who do not do this, there must be a biological reason for their different behaviour. The biological basis of all behaviour is genetic. For example, in female fruit flies, a single gene altered causes them to attempt to copulate with other females.

2. Evidence for inheritance comes from family studies and twin studies. In family studies, mapping the biological family tree of gay and straight men, there are more homosexual or bisexual brothers for the gay men. In twin studies, the concordance rate for homosexuality is higher in identical than non-identical twins.

3. The question is how genes affect sexual orientation. This could occur through physiological differences or a tendency towards gender non-conformity. In the former case, Simon LeVay found that gay men had a specific part of the hypothalamus that was the same size as in women, and smaller than in straight men.
   Gender non-conformity is where children show behaviour typical of the opposite sex. Many homosexual men report not liking boys' games as children and preferring girls' games.

4. A "gay gene" remains in the gene pool because it enhances straight males as more attractive to females, and this leads to evolutionary success.
   Another possibility is that the same gene inherited by a male produces homosexuality, but when inherited by a female makes them more attractive to men. This would also account for the "gene gay" remaining in the gene pool.

5. Homosexual behaviour has been observed in hundreds of species of animals. This must suggest that it has an evolutionary basis.

AGAINST

1. From an evolutionary point of view, homosexuality is not productive and such individuals would die out without any offspring. It is an evolutionary dead end, and a puzzle for evolutionary theory, say Stevens and Price. Any attempts to give evolutionary benefits for a "gay

gene" are pure speculation.

2. Human sexual behaviour is complex and different to non-human animals' behaviour. Thus studies with other species may not tell us much that is relevant to human sexual orientation.

3. Is it meaningful to talk about a "gay gene" when different concordance rates are found for men and women? Feminist psychologist, Jane Ussher, felt that this was a further example of the "age-old practice of positioning the male as the norm", and really research is about a "gay male gene".

4. The existence of a "gay gene" assumes genetic determinism (ie that behaviour is determined by genes), and individuals have little freedom or choice from their biology. But many individuals switch their behaviour between heterosexuality and homosexuality and vice versa at different ages. In some societies (eg: Sambia in New Guinea), teenage boys will experience homosexuality with an older male as a rite of passage, and then marry a woman (and be heterosexual for the rest of their lives).

5. There are many problems with the methods used to study the "gay gene": for example, twin studies have small samples, and research on brain differences depends on post-mortems. The use of dead patients means that full details of their sexual behaviour cannot be ascertained from the individual themselves.

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Ussher, J (1997) Fantasies of Femininity Harmondsworth: Penguin

7. THE NATURE VERSUS NURTURE DEBATE

This debate revolves around the origin of behaviour - inherited or innate (Nature) or learned (Nurture) (table 7.1). There are implications about the child at birth - born with many abilities (Nature) or a "blank slate" (Nurture).

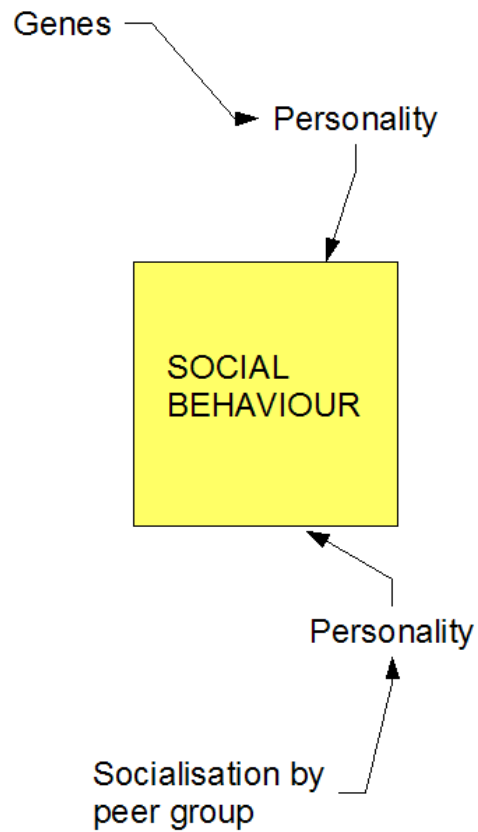| NATURE	NURTURE
• Inherited from parents • Instinctive or innate (eg: reflexes) • Evolved • Relatively fixed • Studied with twin studies and adoption studies	• Learned after birth • Emphasis on socialisation • Cultural and social differences • Flexible • Studied with deprived or enriched environment experiments

Table 7.1 - Characteristics of Nature and Nurture positions on behaviour.

EXAMPLE: SOCIAL BEHAVIOUR IN CHILDREN

The Nature side of the debate sees children's social behaviour (eg: sociability, popularity) as influenced by genes. Anthes (2009) reported work on the social networks of 1110 adolescent twins (identical and non-identical) in the USA. The size and structure of the social networks, including popularity, were linked to genetics in terms of personality characteristics and how attractive they make the person to others (figure 7.1).

On the Nurture side, for example, Harris (1995) proposed the Group Socialisation Theory which emphasised the role of peers, more than parents, in social development. "As children become socialised, their behaviour becomes more similar to that of their same-sex peers" (Judith Rich Harris interviewed in Lehrer 2009).

NATURE

Genes → Personality

SOCIAL
BEHAVIOUR

Personality

Socialisation by
peer group

NURTURE

Figure 7.1 - Nature and Nurture debate on social
behaviour.

REFERENCES

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8. Reductionism and Holism

This debate revolves around how to explain behaviour. Reductionism explains complex phenomena by simple explanations by reducing it to component parts. Holism explains complex phenomena by concentrating upon the whole. In other words, what is the size of the unit of analysis - the whole of behaviour or society (holism) or individual parts (reductionism) (figure 8.1)?

REDUCTIONISM   HOLISM

Approaches	Types of Reductionism	
Biological	physiological; biological; genetic; experimental	Humanistic
Behaviourist	experimental	
Social Learning Theory	experimental	
Cognitive	machine; experimental	
Psychodynamic	psychic	

Figure 8.1 - Six approaches to psychology and reductionism-holism debate.

A hierarchy can be constructed to show the process of reductionism:

HOLISM	all factors
SOCIOLOGY	society
PSYCHOLOGY	the individual
BIOLOGY	physiology/individual cells etc
CHEMISTRY	biochemical processes in cells
PHYSICS	molecules and atoms

But a hierarchy suggests that some explanations are better than others. To overcome this problem, Sapsford (1996) preferred to talk of "domains" where "none is identifiable as 'above' or 'below'".

There are different types of reductionist explanation:

i) Physiological reductionism - complex behaviour is explained by simple physiological processes; eg: consciousness and thinking are reduced to neurons firing

and synapses in the brain.

ii) Biological or evolutionary reductionism - explaining human behaviour by reference to evolution, and the study of less complex animals; eg: human problem-solving reduced to rats finding their way around a maze.

iii) Experimental or methodological reductionism - reduction of behaviour to simple observed connections like stimulus-response. All experiments concentrate on part of behaviour (independent variable and dependent variable) and not the whole person.

iv) Genetic reductionism - explaining all behaviour through genetics.

v) Psychic reductionism - the Psychodynamic approach reduces complex behaviour to unconscious processes or products of the psychosexual stages.

vi) Machine reductionism - computer models reduce human behaviour to information processing stages.

viii) Epistemological reductionism - complex things in one scientific discipline can be reduced to simpler things in another discipline; eg: psychology can be reduced to biology, and biology can be reduced to chemistry.

viii) Ontological reductionism - the absolute reduction of everything to its simplest form; ie: atoms.

The different types of reductionism can be applied to explaining why an individual stole money from another person's house:

• Physiological reductionism - neurons firing that trigger muscles to move in breaking into house;

• Biological reductionism - study of birds stealing food from each other;

• Experimental reductionism - design experiments to study cause of burglary;

• Genetic reductionism - study genes responsible for offending behaviour;

• Psychic reductionism - unconscious motivations to steal;

• Machine reductionism - computer model of decision-making process to steal;

- Epistemological reductionism - chemistry processes in cells during burglary;

- Ontological reductionism - atoms of individual doing the burglary;

- Holism - personality, past experiences, social meanings together to explain behaviour.

It is possible to resolve the reductionism and holism debate by attempting to combine the two sides in an interactionist position. Individual components could be studied because it is easier, but the findings are combined to give a fuller picture of behaviour. However, in practice, there are problems with this idea in terms of how to actually do it.

Another way to resolve this debate is to present the different explanations as ways of seeing the same thing. It is not about which explanation is right, but about what the researcher wants to know. Using the example of voting behaviour, a social psychologist may be interested in the whole social behaviour and meaning of voting while a biological psychology researcher the chemistry of the brain during voting. Both explanations aid in a more detailed picture of behaviour.

Tables 8.1 and 8.2 outline the strengths and limitations of reductionism and holism.

REFERENCE

Sapsford, R (1996) Domains of analysis. In Sapsford, R (ed) Issues for Social Psychology Milton Keynes: Open University

STRENGTHS	LIMITATIONS
* Fits with the scientific method which seeks the most economical (simplest) explanation. This is known as Occam's razor or parsimony. * Easier to study individual elements than the whole. * Disagreements on the same level of explanation can be resolved by researchers; eg: two researchers argue over whether a mental disorder is caused by excessive dopamine or excessive serotonin, experiments can be performed to see who is right. * The whole is far too complex to make any sense of. Concentration upon individual parts helps researchers to "see the wood for the trees". * Different researchers can study different aspects of behaviour; eg: Behaviourists study stimulus-response, biologists genetics. This could also allow for the unification of research from other sciences like biochemistry and physiology with psychology.	* Concentrates on parts of behaviour not the whole person. * Ignores meanings which help to understand significance of behaviour; eg: physiological processes involved in kissing not as important to the individual as the meaning and the experience of the kiss. * Behaviour is too variable and influence by many factors such that a single explanation is impossible; eg: anger occurs in many situations and for many reasons, and a single biological explanation is not very helpful. * Behaviour only makes sense when it is combined at a holistic level; eg: individual atoms combined as the brain or individual people combined as society. * There are different types of reductionism, and sometimes they are contradictory. How to know which type to use to understand behaviour?

Table 8.1 - Strengths and limitations of reductionism.

STRENGTHS	LIMITATIONS
* Takes into account the whole person with all their parts. * Includes the whole meaning of the behaviour beyond the components. * Reducing behaviour to its components tell us nothing; eg: voting behaviour is meaningless if reduced to physiology of writing on the ballot paper. * Many behaviours are caused by a combination of factors or an interaction between factors; eg: increased testosterone aids winning in sport, but winning also increases testosterone. * The whole is greater than the sum of the parts; eg: laying out every component of a car is not the same as driving the finished product.	* Studying the whole can mean that there is too much information; eg studying behaviour of whole of society. * Not possible to study the whole, so "slices of life" are studied. But how typical are these slices and is information missed? eg: a depressed individual is observed for one day to understand their depression, it could be one of their good days. * Some apparently complex behaviours have simple explanations. * Scientific progress in research has been made by focusing on individual components like biochemistry or genes. * Better at describing behaviour than explaining it.

Table 8.2- Strengths and limitations of holism.

9. IDIOGRAPHIC AND NOMOTHETIC

This debate relates to the question of how to study behaviour (figure 9.1).

NOMOTHETIC   IDIOGRAPHIC

Approaches   Psychodynamic   Humanistic
Biological   (middle position
Behaviourist   because though uses   Methods
Social Learning   case study method,   case study
    Theory   it has general   psychoanalysis
Cognitive   explanations of
                    behaviour)
Methods
experiment
psychometric tests
survey

Figure 9.1 - Main approaches and idiographic-nomothetic debate.

The nomothetic approach focuses upon developing general rules and laws about behaviour by comparing large numbers of individuals. The emphasis is upon factors by which to compare everyone and predict the behaviour of all (table 9.1). The preferred research methods are scientific (eg: experiments, psychometric tests).

The idiographic approach is interested in the uniqueness of every individual and in explaining their past behaviour (table 9.2). The case study is the preferred method used, but it is not possible to generalise the findings from a limited number of cases.

The best way to understand behaviour is through a combination of the two approaches because "every man is in certain respects (a) like all other men, (b) like some other men and (c) like no other men" (Kluckhorn and Murray 1953 p53) (and, of course, the same for women too).

REFERENCE

Kluckhorn, C & Murray, H.A (1953) Personality formation: The determinants. In Kluckhorn, C & Murray, H.A (eds) Personality in Nature, Society and Culture New York: Knopf

STRENGTHS	LIMITATIONS
* It is based on scientific principles of establishing general laws about behaviour from large numbers of participants, and allows for predicting of future behaviour. * Results can be generalised to the whole population, and are replicable. * It establishes dimensions on which people can be placed for personality assessment (eg: introvert-extravert), and allows comparison between individuals. * Uses research methods based upon collecting quantitative data. * Allows for classification systems of behaviour like DSM-IV for mental disorders.	* Little interest in the individual other than as a small part of the whole. * Tends to ignore the whole person and concentrate only on specific behaviours, like memory for numbers. * Psychometric tests, like personality tests, emphasise common characteristics of individuals rather than differences (uniqueness) between them. * Ignores individual experience. * Collects only quantitative data.

Table 9.1 - Strengths and limitations of nomothetic approach.

STRENGTHS	LIMITATIONS
* Concerned with the whole person not just specific behaviours. * Emphasises the uniqueness of each individual. * Individuals feel respected because they are treated as unique rather than just as part of the whole. * Better at collecting details of individual experience, and deeper insights into behaviour. * Best way to deal with complex problems that require a lot of time to resolve; eg: psychoanalysis with obsessive-compulsive behaviour.	* Focus upon single individuals means that the findings are not generalisable to other people. * Case study method is not scientific, and thus is not replicable or able to predict future behaviour. * The case study method is also subjective. The researcher interprets the information they collect about the individual, and thus is open to the criticism of being bias. * Because it collects qualitative data, it is not possible to test for statistical significance. * Does not use classification systems which makes it difficult to understand the common patterns in mental disorders, for example.

Table 9.2 - Strengths and limitations of the idiographic approach.

10. PSYCHOLOGY AS SCIENCE

Science has the underlying assumption that all knowledge can be discovered. Thus:

> A team of scientific psychologists could study your reported thoughts, emotions, and motives, your genetics and your history of learning, experience, and development, your social situation and culture, your memories and reaction times, your physiology and neuroanatomy, and lots of other things as well. If they somehow had access to all the information they could ever want, the assumption of psychology is that they could uncover the mechanisms that give rise to all your behaviour .. (Wegner 2002 p1).

The debate about psychology as science relates to the question: is psychology a science?

In terms of this question it is necessary to define what we mean by science. Science refers to the ideas in the natural or physical sciences like chemistry and biology. It is about the use of the scientific method.

The scientific method is a set of principles behind the research method, which is usually the experiment. But the scientific method can include systematic observation and scientifically constructed questionnaires (table 10.1).

Here are the main principles of science and the scientific method (table 10.2):

1. Science has a definable subject matter.

This is the focus of psychology, which is observed behaviour.

2. Facts are established through empirical methods of research.

What we know about behaviour is discovered by objective methods like the experiment. Everything not directly observable (and/or subjective) is excluded.

3. Attempt to discover general laws (principle of generalisability).

Experimental research seeks to generalise their findings from the specific sample to the whole

population. Going from the particular observation to the general is known as induction.

4. Theory and hypothesis-testing.

Science is based upon theory which drives the hypotheses for future research, and knowledge is expanded by hypothesis-testing. Hypothesis-testing involves a clear prediction of what is expected to happen, and this can be proved statistically significant or not.

5. The theory must also come from the data and be falsifiable.

Popper (1959) argued that it is not possible to prove anything as we cannot know what will happen in the future. But a scientific theory must be able to be disproved (or falsified). Thus science can only disprove existing ideas, and all knowledge is only provisional.

Falsification can produce a bizarre situation where "the nearest thing to a true theory is one that hasn't betrayed you yet. Any proposition is bound to let you down finally, but we cling on to the ones that haven't let us down yet" (Edmonds and Eidenow 2002 quoted in Chadwick 2006).

6. Replication of findings.

In science, the findings from one researcher can be copied (replicated) to check the results, particularly if the findings are surprising or controversial. The use of the experiment means that replication is possible.

7. Evaluation and peer review.

Similarly, scientific findings are scrutinised by other researchers for mistakes before being published. The principles of peer review means that research is evaluated for its accuracy. Peer review also means that researchers must defend their findings against criticisms in a public arena (eg: conferences, journal articles).

8. Good theories.

Thomas (1985) proposed a set of criteria for a good scientific theory (as opposed to commonsense). These include falsifiability, truth value (accurately reflect

reality), economical (most straightforward with fewest unproven assumptions), and explains past and predicts future.

9. Existence of a paradigm.

A paradigm is a "common global theory" that the majority of researchers in a discipline share. For example, in biology, evolution is a paradigm because biologists agree upon it as the basis of their subject (even if they disagreement of aspects of evolution).

Kuhn (1970) saw science as developing in three stages in relation to a paradigm:

- Pre-science - there is no agreed paradigm
- Normal science - there is an agreed paradigm
- Revolutionary science - there is a paradigm shift as a new paradigm replaces the old one.

There is a debate about the existence of a paradigm in psychology. Lambie (1991) summarised the possibilities:

i) Psychology is pre-paradigmatic (pre-science) - there is not an agreed one yet;

ii) Psychology has a paradigm (normal science); eg: biological basis of behaviour;

iii) Psychology ahs many paradigms as found in each of the approaches;

iv) Different ideas are competing to become the paradigm (revolutionary science);

v) Psychology has an implicit paradigm - the existence of ideas that are not formally recognised as a paradigm (eg: group behaviour);

vi) Paradigm does not apply to psychology.

10. Goals of science.

Allport (1947) proposed that the goals of science should be prediction, understanding, and control.

Other uses of the term "science" in psychology include (Devalle 1996):

- "Moral science" - "concerned not so much with

describing what people do as with exploring what they could do, how they could view the world and themselves, and perhaps how they should view the world and themselves" (p118);

- "Political science" - "concerned not with general laws but with uncovering power relations in what is assumed and taken for granted about human meanings, with an intent to change the existing social order or resist change to it" (p118).

Returning to the question at the beginning of the section, the answer is "it depends". It depends which approach is answering the question. Psychology is dominated by different approaches, and so maybe we should be asking, which type of psychology is a science?

STRENGTHS	LIMITATIONS
* Possible to establish clear facts about behaviour. * Findings of psychology can be trusted by public because of rigorous methods used. * The scientific method challenges commonsense views of the world. * Hypothesis-testing, replication, evaluation and peer review avoids subjectivity and unfounded opinions. * Focusing on observed behaviour moves away from speculation about the unseen, and even superstition.	* Some parts of psychology are more scientific than others. * The experiment in psychology is different to that of chemistry, for example, because humans are involved, so it can never be completely objective and unbias. * Psychology should include subjective experience and thus does not want to be a science (Henry et al 1997). Scientific psychology leaves out many topic areas like human spirituality. * Scientific psychology is reductionist, deterministic, and nomothetic, and scientists "squeeze the life and interest out of everything they study" (Chadwick 2003). * There are other types of science that could benefit psychology; eg: "moral science" (what people could and should do; eg: personal growth and Humanistic approach) or social science.

Table 10.1 - Strengths and limitations of psychology as a science.

CRITERIA OF SCIENCE	YES	NO
Subject matter	observed behaviour	mental life or subjective experience cannot be observed
Facts	experiments establish them objectively	not possible to be entirely objective or unbias in an experiment; eg: "experimenter effect" or "demand characteristics"
General laws	generalisability of experimental results	idiographic approach focuses upon the uniqueness of the individual; not possible with case studies
Hypothesis-testing	experimental research based on this	hypothesis-testing too narrow and knowledge can be gained by general research without a hypothesis
Falsifiability	experimental research	psychodynamic ideas not falsifiable
Replication	experiments allow this	qualitative methods not possible
Peer review	academic psychology journals	anonymous peer review of articles is not open. Research can be rejected for reasons other than bad science
Good theories	eg: Behaviourism	eg: Psychodynamics, Humanistic
Paradigm	eg: biological basis to behaviour	too much disagreement
Goals	eg: Behaviourism	eg: Humanistic
Approaches	Biological Behaviourist Social Learning Theory Cognitive *	Psychodynamic Humanistic

(* Though Cognitive approach uses scientific method, the subject matter is cognitive processes which are not directly observable, so it is less scientific than the behaviourist approach, for example).

Table 10.2 - Criteria of science and psychology.

DIFFERENT SCIENTIFIC METHODS?

The scientific method is the core of science, but it does seem that this mean different things for different scientific disciplines. Does this mean that there are

"scientific methods", or maybe no such thing as the
scientific method?
        Some take this view, like Cornelius Benjamin who
argued that "science consists ..of scientific discovery,
and that there are no rules by which this act takes
place" (1956 p234). While Wivagg and Allchin (2002)
believed that the scientific method is applied
retrospectively by scientists in order to fulfil the
conventions of scientific publication.
        The strongest argument against a single scientific
method came from Paul Feyeraband in "Against Method"
(1975), with the maxim that the "only 'rule' that
survives is 'anything goes'" (p296).

        In terms of the history of science, three periods of
"scientific thinking" can be distinguished (Williams
2007):

• Ancient Greece - the search for explanations from
  observations other than supernatural;

• "Scientific revolution" - Francis Bacon's use of
  inference from data gathered in the late sixteenth and
  early seventeenth centuries;

• Twentieth century - most importantly, Karl Popper
  (1963) "deductive falsification", and Thomas Kuhn
  (1970, 1996) the concept of paradigm.

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11. SCIENCE, TRUTH AND AIDS DENIAL

11.1. SCIENCE AND TRUTH

Devalle (1996) observed that in everyday life "we have many possible opinions at our disposal which state why something has happened, what something is made up of or how to do something. We come across these opinions all the time; some are formed in the crucible of our own experience, some be listening to other people's experience, and some from our general education. It is because of this melee of opinion that we need and use the concept of truth; truth is assigned to those views we accept or believe. One way of establishing the truth is by finding out the facts" (pp129-130).

A fact is true in relation to not-true. For example, on earth it is a fact that gravity causes objects to fall towards the ground, and it is not true that objects fall skywards due to gravity.
Or that the 2nd World War began in 1939 is a fact, which means that it is not true to say it began in 1389, 1952 or any other year than 1939. In science, a fact is an "interpreted observation" about the way things are, and such a fact can be examined through the appropriate methods (Devalle 1996). More particularly, we are talking about objective truth.

But "To claim objective truth is to lay one's cards on the table, to expose oneself to the possibility of refutation. It is to make it clear that one is talking about something, and saying that 'something is thus and not so'; this makes it possible for others to point out features of that something which are not as claimed, and hence disprove your opinion. All claims to objective truth are vulnerable in some way" (Collier 1994 quoted in Devalle 1996 p131).

A simple position of true-not true is challenged by the contested nature of knowledge. The phenomenological approach, for example, sees all knowledge even scientific knowledge as based on lived experience. There is nothing beyond this subjective experience, and objective truth, as such, does not exist. "The naive realism of objective thought also maintains a clear separation of subject and object, between the world as it really is, and the world as it appears to us through perception" (Langridge and

Butt 2004). Furthermore, "the lived world is always ambiguous, open to more than one interpretation" (Langridge and Butt 2004).

While a social constructionist position views knowledge as "the result of the active, co-operative enterprise of persons in relationship" (Gergen 1985 quoted in Wetherell and Still 1996), and thus "knowledge claims" are open to questioning and debate (Wetherell and Still 1996).

The door is now open and any claim of truth can be questioned. For example, the 2nd World War started in a different year from the perspective of countries who joined later (eg: USA in 1941). The year 1939 is not a fact but an agreed date for convenience. Such questioning makes for interesting academic debates, but there are real implications as in the of "AIDS denial".

11.2. AIDS DENIAL

Individuals' beliefs are not necessarily based upon facts, and to varying degrees may actually go against the conventional wisdom of scientific truth. Thinking differently can be positive, but it can also be detrimental. When do beliefs change from one to the other? How to establish what is truth in an age of relativism [4] and competing beliefs [5]?

It is interesting to try and answer these questions using the case of "AIDS denial" [6]. This can include denying that the HIV infection causes AIDS, or even denying the existence of AIDS. In the latter case, there are individuals who will refuse treatment (and subsequently die), like Christine Maggiore (and her three year-old daughter) in Los Angeles in 2008 [7] (Steinberg 2009). Obviously, holding such beliefs is now negative.

Steinberg (2009) asked the obvious question: "Why, in twenty-first century California, would a middle-class woman and her young daughter die like this when there is tried-and-tested treatment for their illness?" (p33).

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[4] Relativism asserts that "what is true for me may not be true for you" (Sapsford 1996).

[5] "In short, individualism is the new conformity. It is no longer anti-establishment to declare that everyone is unique and should do his own thing - that now is the establishment message of American culture" (Twenge 2009 p30). However, "..it is difficult to be truly unique in a culture that lauds uniqueness. Thus Americans who are more individualistic may just be following the herd. When the herd tells them to 'question authority', they do, and when the herd tells them to obey authority, they do" (Twenge 2009).

[6] Or "HIV dissenters" (Cohen 1994a).

[7] Report from LA Times at http://www.latimes.com/news/local/la-me-christine-maggiore30-2008dec30,0,7407966.story.

"That HIV is the primary cause of AIDS is the strongly held consensus opinion of the scientific community, based upon over two decades of robust research. Deniers must therefore reject this consensus, either by denigrating the notion of scientific authority in general, or by arguing that the mainstream HIV community is intellectually compromised .. Deniers argue that because scientists receive grant money, fame, and prestige as a result of their research, it is in their best interest to maintain the status quo ..This type of thinking is convenient for deniers as it allows them to choose which authorities to believe and which ones to dismiss as part of a grand conspiracy." (Smith and Novella 2007 p1313).

"AIDS denial" takes different forms and challenges how fact is established by science [8].

1. HIV does not cause AIDS.

When individuals were found to be dying in the 1980s from what became known as AIDS, it was unclear about the cause [9]. This is the initial phase in a medical condition, and over time the cause is isolated.
One line of evidence is that treated individuals with AIDS have antibodies to HIV in their blood (the body response), and that individuals with HIV in their blood develop AIDS if left untreated. These could, of course, be correlations only if you wanted to push the point.
In terms of cause and effect, the strongest evidence is that anti-retroviral treatments (ART) stop the develop of AIDS. So a drug that reduces the effect of HIV, working backwards must mean that HIV causes AIDS.
The US Centers for Disease Control in 1993 reported 230 179 cases of "AIDS-like illness", and only 0.25% of these individuals were HIV-negative (Steinberg 2009).

2. HIV and AIDS are correlated together, but the cause of AIDS is something else.

A more specific version of the previous point is where the cause of AIDS is blamed upon ART [10], for

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[8] The scientific response to "AIDS denial" can be seen at http://www.aidstruth.org/.

[9] Peter Duesberg, virologist, is the oft-quoted most famous scientist to deny that HIV causes AIDS (Cohen 1994a).

[10] Initially, amyl nitrate ("poppers") used among sub-groups in the "gay community" was cited as the cause of AIDS. This was expanded to all recreational drugs, and then prescription drugs (like steroids). Finally, ART was blamed (Smith and Novella 2007). Cohen (1994b) summarised the arguments against the "drug-AIDS" hypothesis.

example, or it is an opportunistic infection that appears. In response to the former argument, AIDS existed before ART was developed (Steinberg 2009).

3. AIDS does not exist at all.

This is a difficult belief to challenge in the sense that individuals will believe what they want irrelevant of scientific evidence. There is enough sound medical evidence from the last quarter of a century to show that AIDS does exist.
Often this belief is associated with the accusation that AIDS is a medical conspiracy by pharmaceutical companies, to make money from ART, and/or doctors who cannot admit their mistakes.

4. AIDS as a Western conspiracy.

In Africa, for example, AIDS has denied because the element of sexually transmitted "reflected racist beliefs that Africans were promiscuous" and ignored "the obvious cause of immune deficiency in Africa: poverty" (Steinberg 2009 p35).
For example, in a Ugandan study of 20 000 adults, HIV deaths were more among middle-classes than the poor (ie: not poverty the cause) (Steinberg 2009).

Many ideas related to conspiracies see unseen forces behind events in a way that suggests control and predictability. Shermer (2009) linked this behaviour to "patternicity" and "agenticity".
Patternicity is the evolutionary ability to find patterns (meaning) in "meaningless noise". Finding patterns allows humans to predict the world and increase the chances of survival. However, some patterns will be real and others will be the product of the brain's search for meaning.
Agenticity goes with patternicity. It is the "tendency to believe that the world is controlled by invisible intentionable agents" (Shermer 2009).
Finding and experiencing such patterns in the world is a "supersense" that humans have (Hood 2009).

11.3. CONCLUSIONS

Bhaskar (1978) made the distinction between intransitive and transitive objects of knowledge. The former category includes the areas studied by natural science which are beyond social construction: "things which are not produced by men at all". So "If men ceased

to exist sound would continue to travel and heavy bodies fall to the earth in exactly the same way.." (Bhaskar 1978 p22 quoted in Wetherell and Still 1996). Transitive objects of knowledge is the category of knowledge that is a social product and related to social meaning.

It can be argued that there is a confusion between these two categories in "AIDS denial". AIDS as a biological entity is an intransitive object, and exists irrelevant of human beings in one sense. However, because of the social meanings attached to HIV/AIDS, it has been mistaken for a transitive object. Such objects are constructed by social meanings, and thus open to debate and contested. "AIDS denial" contests the existence of HIV/AIDS in the same way as individuals dispute political ideologies and beliefs, and other subjective ideas. The objective biological entity is mistaken for a subjective phenomenon.

The place of science in society is also relevant here. Giddens (1994) talked about the "debunking of the expert" in "late modern" or "post-modern" society. One of the characteristics of this situation is that personal opinion is elevated to equality or even above scientific evidence.

"AIDS denial" can be seen as part of this general "attack" on science, and not necessarily an attack with supporting evidence: "Further, their arguments amount to little more than another logical fallacy, the false dichotomy: they assume that overturning the prevailing theory will prove their theory correct, by default" (Smith and Novella 2007 p1314).

Smith and Novella (2007) concluded that: "A solid understanding of the scientific method may not eliminate science denial, but it may act as a buffer against the further spread of such denialist beliefs" (p1315).

It is a thin line between dissent that produces progress in science based around the concept of falsification, and denying the truth. The question is how to distinguish one from the other.

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